

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A roof covering comprising:
a roofing mat formed from fibers of a fiber material, the fibers having properties suitable for forming the roofing mat, the fibers coated with a sizing; and
an asphalt-based coating material that coats the mat;
the sizing including a film forming polymer, and a sulfur-containing material that bonds to the fiber material, the sulfur-containing material having therein sulfur groups that form cross-links with the asphalt;
wherein the roof covering is a roofing shingle and the tear strength of the roof covering roofing shingle is increased by at least about 5% as measured by ASTM D 1922 compared to the same roof covering without the sulfur-containing material in the sizing.
2. (Original) A roof covering according to claim 1 wherein the sulfur-containing material is a sulfide silane.
3. (Original) A roof covering according to claim 1 wherein the fiber material is glass.
4. - 5. Canceled
6. (Previously Presented) A roof covering according to claim 1 wherein the tensile strength of the roofing mat is not decreased by more than about 2% compared to the same roofing mat without the sulfur-containing material in the sizing, and wherein the uniformity of fiber dispersion within the roofing mat is not significantly different compared to the same roofing mat without the sulfur-containing material in the sizing.
7. (Original) A roof covering according to claim 1 wherein the amount of the sulfur-containing material in the sizing is from about 1% to about 10% by weight of the solids in the sizing.

8. (Currently Amended) A roof covering according to claim 1 ~~wherein said roofing covering is a shingle having further comprising~~ roofing granules embedded in a surface of the coating material.

9. (Currently Amended) A roof covering comprising:
a roofing mat formed from fibers of a fiber material, the fibers being coated with a sizing;
and

a coating material that coats the mat, the coating material consisting essentially of asphalt, filler, and elemental sulfur, the elemental sulfur being added to the coating material in an amount from about 0.1% to about 2.0% by weight of the coating material,

the sizing including a film forming polymer, a coupling agent, a lubricant, and a bonding material that bonds both to the fiber material and to the elemental sulfur;

wherein the elemental sulfur forms cross-links with the asphalt; and

wherein the roof covering is a roofing shingle and the tear strength of the ~~roof covering roofing shingle~~ is increased by at least about 5% as measured by ASTM D 1922 compared to the same roof covering without the bonding material in the sizing and the sulfur added to the coating material.

10. (Previously Presented) A roof covering according to claim 9 wherein the bonding material is a compound having a first functional group that bonds to the fiber material and a second functional group that bonds to the sulfur.

11. (Previously Presented) A roof covering according to claim 10 wherein the second functional group of the compound includes a double bond.

12. (Previously Presented) A roof covering according to claim 11 wherein the second functional group is a vinyl group.

13. (Original) A roof covering according to claim 12 wherein the compound is a vinyl silane.

14. (Original) A roof covering according to claim 9 wherein the bonding material is a material that is bonded to the fiber material by grafting.

15. (Original) A roof covering according to claim 9 wherein the fiber material is glass.

16. -17. Canceled

18. (Previously Presented) A roof covering according to claim 9 wherein the tensile strength of the roofing mat is not decreased by more than about 2% compared to the same roofing mat without the bonding material in the sizing and the sulfur added to the coating material, and wherein the uniformity of fiber dispersion within the roofing mat is not significantly different compared to the same roofing mat without the bonding material in the sizing and the sulfur added to the coating material.

19. (Original) A roof covering according to claim 9 wherein the amount of the bonding material in the sizing is from about 1% to about 10% by weight of the solids in the sizing.

20. Canceled

21. (Original) A roof covering according to claim 9 further comprising roofing granules embedded in a surface of the coating material.

22. (Previously Presented) A roof covering according to claim 1 which has a tear strength of at least 1475 grams as measured by ASTM D 1922.

23. (Previously Presented) A roof covering according to claim 9 which has a tear strength of at least 1475 grams as measured by ASTM D 1922.

24. Canceled

25. (Previously Presented) A roof covering according to claim 9 wherein the sulfur reacts with double bonds in the asphalt.

26.-28. Canceled

29. (Previously Presented) A roof covering according to claim 9 wherein the elemental sulfur is added in an amount from about 0.1% to about 0.8% by weight of the coating material.

30. (Previously Presented) A roof covering according to claim 9 wherein the tear strength of the roof covering is increased by at least about 10% as measured by ASTM D 1922 compared to the same roof covering without the bonding material in the sizing and the sulfur added to the coating material.

31. (Previously Presented) A roof covering according to claim 9 wherein the tear strength of the roof covering is increased by at least about 15%.

32. (Currently Amended) A roof covering comprising:
a roofing mat formed from fibers selected from silica-based fibers, metal fibers, and
combinations thereof coated with a sizing; and
an asphalt-based coating material that coats the mat;
wherein the sizing includes a film forming polymer and a sulfur-containing material that
has functional groups that bond to the fiber material, the sulfur-containing material having
therein sulfur groups that form cross-links with the asphalt; and
wherein the roof covering is a roofing shingle and the tear strength of the roof covering
roofing shingle is increased by at least about 5% as measured by ASTM D 1922 compared to the
same roof covering without the sulfur-containing material in the sizing.

33. (Previously Presented) The roof covering of claim 32, wherein the sulfur-containing material is a sulfide silane.

34. (Previously Presented) The roof covering of claim 32, wherein the tensile strength of the roofing mat is not decreased by more than about 2% compared to the same roofing mat without the sulfur-containing material in the sizing, and wherein the uniformity of fiber dispersion within the roofing mat is not significantly different compared to the same roofing mat without the sulfur-containing material in the sizing.

35. (Previously Presented) The roof covering of claim 32, wherein the amount of the sulfur-containing material in the sizing is from about 1% to about 10% by weight of the solids in the sizing.

36. (Previously Presented) A roof covering comprising:
a roofing mat formed from fibers of a fiber material, the fibers being coated with a sizing;
and
a coating material that coats the mat, the coating material consisting essentially of asphalt, filler, and elemental sulfur, the elemental sulfur being added to the coating material in an amount from about 0.1% to about 2.0% by weight of the coating material,

wherein the sizing includes a film forming polymer and a bonding material that bonds both to the fiber material and to the elemental sulfur;

wherein the elemental sulfur forms cross-links with the asphalt; and
wherein said elemental sulfur and said bonding material cooperate to enhance interfacial bonding between said fiber material and said coating material.

37. (Previously Presented) The roof covering of claim 36, wherein the bonding material is a compound having first functional groups that bond to the fiber material and second functional groups that bond to the sulfur.

38. (Previously Presented) The roof covering of claim 37, wherein the second functional groups of the compound include double bonds.

39. (Previously Presented) The roof covering of claim 38, wherein the second functional groups are vinyl groups.

40. -41. Canceled

42. (Previously Presented) The roof covering of claim 1, wherein the sizing additionally contains a coupling agent and a lubricant.

43. (Previously Presented) The roof covering of claim 9, wherein the sizing additionally contains a coupling agent and a lubricant.

44. (Previously Presented) The roof covering of claim 32, wherein the sizing additionally contains a coupling agent and a lubricant.

45. (Previously Presented) The roof covering of claim 36, wherein the sizing additionally contains a coupling agent and a lubricant.

46. (Previously Presented) The roof covering of claim 10, wherein the first functional group is a silane group and the second functional group is a vinyl group, an acrylic group, a sulfide group or a urethane group.

47. (Previously Presented) The roof covering of claim 37, wherein the first functional group is a silane group and the second functional group is a vinyl group, an acrylic group, a sulfide group or a urethane group.